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ABSTRACT

A motion picture test of perceptual abilities has been developed for use as a screening test with elementary school children. Part I has 25 items in which the child must identify a hidden stimulus figure within one of four designs. Part II contains 25 items in which a child must identify from four alternatives a figure formed by three or four separate lines which have been presented successively. The test is a 16mm sound film, is self administering and requires about 30 minutes of total testing time. It is appropriate for use in Grades Four through Six. (Author)

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A Motion Picture Screening Test for Perceptual Disabilities

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A motion picture test of perceptual abilities has been developed for use as a screening test with elementary school children. Part I has twenty-five items in which the child must identify a hidden stimulus figure within one of four designs. Part II contains 25 items in which a child must identify from four alternatives a figure formed by three or four separate lines which have been presented successively. The test is a 16 mm sound film, is self administering and requires about 30 minutes of total testing time. It is appropriate for use in Grades Four through Six.

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A Motion Picture Screening Test for Perceptual Disabilities

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Objectives

This report describes a new, easily administered test of perceptual abilities which may have utility as a screening device for identifying perceptually handicapped children in the elementary grades.

Background and Procedure

The present screening test is a direct extension of a series of ten tests developed earlier (McDaniel, 1971a) which used motion pictures to measure perceptual abilities. Scores on these tests were demonstrated to have a modest correlation with reading and were comparatively free of intelligence as measured by the Stanford-Binet. The earlier tests were designed to cover a broad age range and were administered individually. A revision of the initial set of perceptual tests adapted the measures for group administration (McDaniel, 1971b). Test booklets, however, were expensive to produce and in addition, the battery required almost an hour and a half of testing time. Two of the most promising tests were selected from the ten test battery and further refined for use with children in the 9 to 12 year old age range.

The present test is composed of two parts, each containing 25 test items. Part I, Embedded Figures, presents a stimulus figure on the screen for three seconds. Following the stimulus, the screen displays four designs, one of which contains the stimulus figure as part of a more complex design. The child responds by marking an answer sheet to show the quadrant of the screen which contains the embedded figure.

Part II, Successive Figures, presents successively the sides of a figure one at a time. For example, the screen may show, in turn, the left side of a triangle, the right side, and then the bottom. The child must form the complete pattern in his mind and then recognize the pattern from a series of four designs displayed on the screen.

The screening test was filmed on 16mm film with an accompanying sound track. Instructions and two practice items on the film precede each part of the test. For each part, before the projector is started, the teacher provides practice with three demonstration items to insure that all students understand the task. Total

testing time is 30 minutes.

The screening test was administered to 1375 public school pupils in six states. Children in the second and third grade sample came from Phoenix, Arizona, Ft. Collins, Colorado and adjacent communities, and Attica, Indiana. The fourth, fifth and sixth grade sample came from Mobile, Alabama, Los Angeles, Indianapolis, and Rochester, New York. All testing was done between October and December.

The means, standard deviations and reliability estimates (KR-20) for each part of the test and the total are presented in Table 1.

Table 1

Screening Test
Reliability Coefficients, Means, and Standard Deviations
by Grades

		Part I (Embedded Figures)			Part II (Successive Figures)			Total		
Grade	n	KR-20	$\bar{X}$	S.D.	KR-20	$\bar{X}$	S.D.	KR-20	$\bar{X}$	S.D.
2	223	.77	11.3	4.70	.77	11.8	4.84	.86	23.2	8.69
3	195	.70	13.8	4.16	.71	14.0	4.24	.81	27.8	7.36
4	323	.74	15.2	4.31	.75	16.2	4.47	.84	31.4	7.69
5	325	.72	15.8	4.19	.77	16.7	4.59	.84	32.5	7.62
6	309	.75	17.1	4.22	.80	17.6	4.75	.87	34.7	8.06

Inspection of Table 1 reveals median reliabilities of .74 for Part I, .77 for Part II, and .84 for the total score. There is also a fairly sharp increase in mean scores between grades 2 and 3 and again between grades 3 and 4. Examination of teacher comments returned with the answer sheets indicated that the younger children, those in grades 2 and 3, had difficulty with the general format of the test and with the tempo or pacing of the test items. These comments were sufficiently consistent to suggest that the screening test, in its present form, is appropriate only for use in grades 4, 5 and 6.

Two limited validity studies have been conducted with the screening test. The first study involved the 227 students in grades 4, 5, and 6 from Indianapolis who participated in the standardization study. All of these children were enrolled in a school located in a zone of transition from middle to lower class. Intelligence measures and reading scores were obtained from the school records for 205 of these children. The mean age of the children was 11 years, the mean I.Q. (Otis Lennon) was 88 and the mean reading achievement (Stanford Achievement Tests) was 3.9. The correlations among the scores on the screening test and the reading test are presented below.

Screening Test	Reading
Part I	.34
Part II	.28
Total	.36

The total score of the screening test also correlated .36 with the I.Q. scores. The correlations of the screening test with both reading and the group intelligence test indicate that the total score on the screening test has a moderate relationship with paper and pencil tasks involving reading.

In addition, this study yielded a correlation of .55 between parts one and two of the screening test. This correlation is sufficiently modest to suggest that examination of differential performance on the two parts of the test may have diagnostic significance.

The second study involving the screening test was conducted with 91 fourth and fifth grade students from a predominantly rural area in Indiana. They ranged in age from 9 to 13 and had a mean I.Q. of 102 (Otis Lennon).

The perceptual screening test was administered to this group along with a Weekly Reader Diagnostic test containing four part scores, the Stanford Achievement Reading test with three part scores and the Rutgers Drawing Test, Form B. The correlation matrix for these ten variables is presented in Table 2.

Inspection of Table 2 reveals that the total score of the screening test correlates .48 with I.Q. and .52 with the Rutgers Drawing Test. The median correlation between the screening test and the seven measures of reading ability was .44.

While the screening test was not designed primarily to predict reading, the correlations between the screening test total scores and measures of reading achievement offer strong support that it is measuring some perceptual phenomenon important in the reading process. Still remaining to be done are the more critical studies investigating the frequency of neurologically impaired children among those falling in the bottom 10 percent of the score distributions.

Table 2

Correlation Matrix: Perceptual Screening Test (Total Score) and Measures of Intelligence, Reading, and Perceptual-Motor Abilities

	1	2	3	4	5	6	7	8	9	10
1. Screening Test	1.00	.48	.41	.33	.47	.37	.44	.48	.45	.52
2. Otis Lennon I.Q.		1.00	.75	.68	.78	.76	.79	.85	.76	.63
3. Comprehending Facts			1.00	.72	.79	.75	.71	.79	.69	.65
4. Interpreting Facts				1.00	.71	.71	.63	.72	.53	.54
5. Selecting Main Ideas					1.00	.72	.77	.79	.67	.68
6. Vocab. from Context						1.00	.74	.79	.70	.56
7. Word Meaning							1.00	.88	.75	.67
8. Paragraph Meaning								1.00	.77	.69
9. Word Study Skills									1.00	.65
10. Rutgers										1.00

While the developmental work leading to this test suggests that it may have value in identifying perceptually handicapped children, validity studies must be accomplished before positive claims are made for the tests. This instrument makes possible such studies, including longitudinal analysis of school achievement of children identified early as having potential learning disabilities.

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